

60. (New) Process in accordance with Claim 1, characterized in that the regenerating bath in Step i) contains between 0.1 and 0.7 g/l of BEROL.

61. (New) Process in accordance with Claim 1, characterized in that the regenerating bath in Step i) contains approximately 0.4 g/l of BEROL.

62. (New) Process in accordance with Claim 23, characterized in that the spinnerets are kept at a temperature of approximately 67°C.

REMARKS

I. Status of Claims

Claims 1-53 are pending in the instant application and have been examined. Claims 3, 13, 20-22, 24, 37, 38 and 45-53 stand rejected under 35 U.S.C. §112, second paragraph, "as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention." Official Action, page 2. Claims 45-53 stand rejected under 35 U.S.C. §101 upon the contention that the claim recitation of a use without setting forth any steps involved in the process results in an improper definition of a process. Claims 1-16, 18-24 and 26-34 also stand rejected under 35 U.S.C. §103(a) as obvious over Manufacturing Processes, Viscose Process, Chapter 8, Introductory Textile Science, pages 82-85, by Joseph ("the Joseph reference") in view of U.S. Patent No. 2,046,670 to Beattey ("the Beattey '670 Patent") and British Patent GB 2 062 652 to Marini et al. ("the Marini et al. '652 Patent"). Claims 17 and 25 also stand rejected under 35 U.S.C. §103(a) as obvious over Joseph, Marini and Beattey as applied to claim 1 above, and further in view of U.S. Patent No. 5,482,776 to Nishiyama et al. ("the Nishiyama et al. '776 Patent"). Finally, claims 43 and 44 stand objected to as being dependant upon a rejected base claim, but would be allowable if rewritten in independent form to include all of the limitations of the base claim and any intervening claims.

Claims 1, 3, 20-22, 24, 37, 38 and 43-53 have been amended. Claim 13 has been cancelled. New claims 54-62 have been added. Pursuant to 37 C.F.R. § 1.121, attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment. The attached page is captioned "Version With Markings To Show Changes Made."

Reconsideration of the application based on the amendments and arguments set forth herein below is respectfully requested.

II. Response to Objection to Specification

The Patent Office states that "[t]he use of the trademark BEROL has been noted in this application. It should be capitalized wherever it appears and be accompanied by the generic terminology." Official Action, page 2.

The specification has been amended to capitalize the trademark BEROL. No new matter has been introduced by this purely formal amendment.

III. Response to the Rejections Under 35 U.S.C. §112, Second Paragraph

Due to the extent of the Patent Office's comments associated with the rejection of claims 3, 13, 20-22, 24, 37, 38 and 45-53 under 35 U.S.C. §112, second paragraph, applicants have organized their response in a claim-by-claim fashion for clarity as follows.

Claims 3, 20-22 and 24

The Patent Office states "claim 3 recites the broad recitation 'does not exceed 7%,' and the claim also recites 'preferred is no more than 5%, and particularly favourable is no more than 2%,' which is the narrower statement of the range limitation. Claims 20-22 and 24 are similarly rejected." Official Action, page 3.

Claims 3, 20-22 and 24 have been amended to recite a single value or range of values.

Support for the amendments to claims 3, 20-22 and 24 is found in the claims themselves. No new matter is introduced by the amendments to claims 3, 20-22 and 24.

Claim 13

The Patent Office states claim 13 "contains the trademark/trade name 'Berol.'" Official Action, page 3. The Patent Office continues, "[w]here a trademark or trade name is used in a claim as a limitation to identify or describe a particular material or product, the claim does not comply with the requirements of 35 USC 112, 2nd paragraph," Official Action, page 3.

Claim 13 has been deleted, rendering the rejection of claim 13 under 35 U.S.C. §112, second paragraph, moot.

Claim 37

The Patent Office states "[c]laim 37 is indefinite because it is unclear if the backing fabric, the pile or both are comprised of the inventive cellulose fiber." Official Action, page 3.

Claim 37 has been amended to clarify that it is the pile and not the backing fabric that contains the fibers according to claim 33 of the present invention.

Support for the amendments to claim 37 is found in the claim itself. Additional support is found on page 8, lines 21-23. No new matter is introduced by the amendments to claim 37.

Claim 38

The Patent Office states 'the phrase 'lattice-like' renders the claim indefinite because the claim includes elements not actually disclosed (those encompassed by '-like'), thereby rendering the scope of the claim unascertainable.' Official Action, page 3.

Claim 38 has been amended to remove the descriptor "-like". The amended claim recites the element that the backing fabric has a lattice structure.

Support for the amendments to claim 38 is found in the claim itself. No new matter is introduced by the amendments to claim 38.

Claims 45-53

The Patent Office states that claims 45-53 "provide for the use of a fabric, but, since the claim does not set forth any steps involved in the method /process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced." Official Action, page 3.

Claims 45-53 have been amended, and each now recites an article of manufacture that comprise a fabric in accordance with claim 37. Support for these amendments is found in the claims themselves, as well as throughout the specification, for example on page 9, lines 27-32; page 10, lines 10-11; page 10, lines 14-17; page 10 lines 28-30; page 11, lines 1-3; page 11, lines 10-11; and page 12, lines 21-23.

Summarily, claims 45-53 have been amended to recite articles of manufacture. By so amending the claims, applicants submit that the Patent Office's rejection of claims 45-53 under 35 U.S.C. §112, second paragraph, has been rendered moot. Applicants therefore respectfully request that the rejection of claims 45-53 under 35 U.S.C. §112, second paragraph, be withdrawn. Applicants further submit that claims 45-53 are in condition for allowance and respectfully solicit the same.

IV. Response to the Rejections Under 35 U.S.C. §101

The Patent Office has rejected claims 45-53 under 35 U.S.C. §101 "because the claimed recitation of a use, without setting forth any steps involved in the process,

results in an improper definition of a process, i.e. results in a claim which is not a proper process claim under 35 U.S.C. 101." Official Action, page 4.

Claims 45-53 have been amended to recite articles of manufacture. Articles of manufacture are statutory subject matter. Applicants therefore respectfully request that the rejection of claims 45-53 under 35 U.S.C. §101 be withdrawn. Applicants further submit that claims 45-53 are in condition for allowance and respectfully solicit the same.

V. Response to the Rejections Under 35 U.S.C. §103(a)

A. The Examiners Rejections

The Patent Office has rejected claims 1-16, 18-24 and 26-34 under 35 U.S.C. §103(a) based on the Joseph reference in view of the Beattey '670 Patent and in view of the Marini et al. '652 Patent. The Patent Office's basis for this rejection is set forth in detail at pages 4-8 of the Official Action. Applicants respectfully traverse the rejection and submit the following comments.

The Patent Office characterizes the Joseph reference as disclosing a process of making rayon fibers. The Patent Office states the Joseph reference discloses "treating wood pulp with sodium hydroxide to obtain an alkali cellulose, pressing, shredding into crumbs, aging, reacting with carbon disulfide to obtain cellulose xanthate, diluting in sodium hydroxide, aging, filtering and deaerating, spinning fibers into a spin bath of aqueous sulfuric acid, sodium sulfate and additives such as zinc sulfate, passing fibers through a bath of dilute sulfuric acid, washing." Official Action, page 4.

Continuing, the Patent Office contends the Joseph reference "teaches the process of claim 1, with the exception of (a) wood pulp shoots no older than one year of deciduous trees or conifers, (b) the ripening maturity of 5-30 Hottenroth at each aging step, (c), twisting the fibers coagulated fibers, and..." Official Action, page 5.

The Patent Office contends, "[w]ith respect to the limitations in claims 1-3 of the type, age and lignin content of the shoots which are processed, it is asserted that

this limitation is [a] structural limitation in a method claim, and as such is not given patentable weight at this time." Official Action, page 5. The Patent Office further states "[e]mploying an alternative source of wood pulp would not change the process of making a rayon fiber." Official Action, page 5.

Turning to claims 1, 11, 12 and 16, after offering a characterization of the Marini et al. '652 Patent, the Patent Office contends "the presently claimed Hottenroth values are known in the art as suited for forming fibers of regenerated cellulose." Official Action, page 5. The Patent Office concludes, "the claimed Hottenroth values would have been obvious to one of ordinary skill in the art at the time of the invention since the prior art teaches said values a suitable for a viscose process." Official Action, page 5.

Continuing with claim 1, the Patent Office presents its characterization of the Beatley '670 Patent and then states, "it would have been obvious to one skilled in the art to twist the fibers as taught by Beatley in the viscose process taught by Joseph in order to enhance the viscose filaments." Official Action, page 5.

With respect to claim 7, the Patent Office states, in view of its characterization of the Marini et al. '652 Patent, "it would have been obvious to one skilled in the art to employ a secondary bath to dehydrate and desulphurise the regenerated cellulose." Official Action, page 6.

The Patent Office asserts that the concentrations and temperature ranges recited in claims 4-6, 8-10, 13-15, 18-24 and 26-29 "are not novel to the viscose process of making fibers" and that "discovering an optimum value of a result effective variable involves only routine [sic] skill in the art." Official Action, page 6.

The Patent Office then offers Official Notice that methods of shredding with employ both coarse and fine steps are well known.

Continuing with the claims, the Patent Office states "[w]ith respect to claim 30, it is noted that Joseph teaches treatment of viscose filaments with titanium dioxide as a delustering agent." Official Action, page 6.

The Patent Office again offers Official Notice of its position that methods of drying are well-known in the art. Official Action, page 6.

With respect to claims 34 and 35, it is the Patent Office's position that "although Joseph does not explicitly teach the spacing of lamellae it is argued that this spacing would obviously have been provided as a result of the process disclosed by Josph, Marini and Beattey." Official Action, page 7.

Claims 17 and 25 have been rejected under 35 U.S.C. §103(a) as unpatentable over the Joseph reference, the Marini et al. '652 Patent, the Beattey '670 Patent and U.S. Patent No. 5,482,776 to Nishiyama et al. ("the Nishiyama et al. '776 Patent"). The Patent Office initially notes "Joseph, Marini and Beattey do not teach the mixing of the spinning dope with an additional spinning dope", but the Patent Office then asserts, "this process step is known in the art." Official Action, page 7.

The Patent Office then contends, "Nishiyama teaches a spinneret having a slit-shape. Thus, it would have been obvious to one skilled in the art to employ a slit-shaped spinneret in order to produce a flat ribbon-like rayon filament." Official Action, page 8.

The Patent Office rejected claims 37-42 under 35 U.S.C. §103(a) as unpatentable over the Joseph reference, the Marini et al. '652 patent and the Beattey '670 patent. The Patent Office, once again, offers Official Notice of its position that it is well known in the art of carpet to employ rayon fibers for a primary carpet backing and/or pile fibers." Official Action, page 8.

Lastly, the Patent Office contends "it would have been obvious to employ the rayon fibers as taught by Josph, Marini and Beattey, in a known carpet backing or pile fabric since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. Official Action, page 8.

B. The Applicants' Arguments

The U.S. Court of Appeals for the Federal Circuit ("C.A.F.C.") has set forth in Environmental Design Ltd. v. Union Oil Co., 713 F.2d 693 (Fed. Cir. 1983), cert. denied, 464 U.S. 1043 (1984), the factual determinations to be made, as well as the evidence to consider, in making an obviousness determination under §103 as including:

- (a) the scope and content of the prior art;
- (b) the differences between the prior art and the claimed invention;
- (c) the level of ordinary skill in the pertinent art; and
- (d) additional evidence, which may serve as indicia of non-obviousness.

All relevant evidence on each of these four dispositive issues must be fully considered and evaluated to determine whether the claimed invention would have been obvious.

Applicants also note the "tenets of patent law that must be adhered to when applying §103" as outlined by the C.A.F.C. in Hodosh v. Block Drug Co., 786 F.2d 1136, 1143, n.5 (Fed. Cir. 1986): the claimed invention must be considered as a whole; the references must be considered as a whole and suggest the desirability and thus obviousness of making the combination; the references must be reviewed without benefit of hindsight vision afforded by the claimed invention; and "ought to be tried" is not the standard with which obviousness is determined. Additionally, it is well known that a prima facie case of obviousness requires that the cited document or combination must disclose all aspects of the claimed invention; must contain a suggestion to modify the cited document(s) to arrive at the claimed invention; and/or there must be a reasonable chance of success to reach the claimed invention as a result of the modifications.

Applicants respectfully submit that, in the present case, the Patent Office has not presented a logical link between the cited references and the pending claims and has instead pieced together references in an attempt to reconstruct the claimed invention by impermissible hindsight reasoning. ("As in all determinations under 35

U.S.C. section 103, the decision-maker must bring judgment to bear. It is impermissible, however, simply to engage in a hindsight reconstruction of the claimed invention, using the applicant's structure as a template and selecting elements from references to fill the gaps." In re Gorman, 18 U.S.P.Q.2d 1885, 1888 (Fed. Cir. 1991) (citation omitted).)

Starting first with claim 1, by the Patent Office's own admission, the Joseph reference, the Patent Office's primary reference, fails to disclose wood pulp shoots no older than one year of deciduous trees or conifers, nor does this reference disclose the ripening maturity of 5-30° Hottenroth at each aging step; the reference also does not disclose twisting the coagulated fibers. These deficiencies are not compensated for by either of the other two references cited by the Patent Office, the Marini et al. '652 patent or the Beatley '670 patent. Even if these references do, in fact, disclose one or more steps of the method of claim 1, as the Patent Office contends, they still do not disclose all of the steps of the novel method of claim 1. Thus, the cited references fail to disclose at least those steps of claim 1 identified by the Patent Office. These aspects of the present invention, which are embodied in claim 1, are absent from the cited references. Thus, the cited references, neither alone nor in combination, do not disclose or suggest each and every element of the claimed invention.

More particularly, claim 1 is directed to a process of manufacturing a cellulose fiber from hydrate cellulose and comprises steps (a) through (o). The process results in a cellulose fiber having a microstructure that displays fiber parallel lamellae. As disclosed in the specification of the subject patent application, the spacing between the fiber-parallel lamellae preferably ranges from about 1 nm to about 5 μ m, and in one embodiment from about 200 nm to about 1 μ m. In other words, the cellulose fibers generated by performing the process of claim 1 is characterized by a microstructure comprising nano-lamellae. This microstructure containing nano-lamellae is only obtained by processing wood pulp derived from shoots no older than one year of deciduous trees or conifers as a starting material and by employing the

steps of claim 1. None of the cited references disclose a nano-lamellar microstructure, nor do they disclose processing wood pulp derived from shoots no older than one year of deciduous trees or conifers as a starting material, which contributes to such nano-lammelar microstructure.

Stated another way, unlike the present invention, the teachings of the cited references cannot be employed to generate a cellulose fiber comprising nano-lamellae. This is due, in part, to the fact that the hydrate cellulose in the starting materials recited in step (a) of claim 1 (i.e., wood pulp derived from shoots no older than one year of deciduous trees or conifers) is substantially free of lignin and also comprises a large amount of crystalline cellulose I (e.g., cellulose having an X-ray crystallinity of about 56-63%). During the process of claim 1, the crystalline cellulose I is converted to a homogeneous structure comprising cellulose II.

A microstructure comprising nano-lamellae, such as that found in a fiber of the present invention, results from the condensation (via a dehydration reaction) of two or more cellulose II chains via intermolecular O-6...HO-3 bridge bonds, whereby a substantially 2-dimensional structure (i.e. lamellae) is formed. The steps of claim 1, including treating wood pulp derived from shoots no older than 1 year of deciduous trees or conifers with an alkali metal hydroxide solution, facilitate the conversion of cellulose I into cellulose II, thereby forming microstructure containing nano-lamellae.

Further, Applicant's urge that, wood pulp derived from shoots older than one year of deciduous trees or conifers contains a large amount of lignin, but a low amount of crystalline cellulose I. This might be because lignin is not compatible with cellulose I structure. In other words, wood pulp derived from shoots older than one year contains cellulose having a different structure, and does not contain cellulose mainly in the form of cellulose I. When wood pulp other than the wood pulp derived from shoots no older than one year of deciduous trees or conifers recited in claim 1 is treated by the steps of claim 1 (or by other methods known in the art), the fiber produced contains inhomogeneous cellulose II and/or cellulose III, which forms a 3-dimensional network but not a 2-dimensional (i.e. lamellar) structure. Thus, wood

pulp different from that recited in claim 1 cannot be employed to form a fiber having a microstructure comprising nano-lamellae.

Restating then, only the combination of the specific starting materials set forth in step (a) of claim 1 and the specific process parameters given in claim 1 facilitates the formation of microstructure comprising nano-lamellae.

Thus, contrary to the Patent Office's position that "employing an alternative source of wood pulp would not change the process of making a rayon fiber" (Official Action, page 5), the starting materials do in fact play a role in the production of a cellulose fiber. Indeed, the relatively young (i.e. one year or less) shoots of deciduous trees and conifers contribute to the formation of the nano-lamellar microstructure of a fiber formed by the process of claim 1. Fibers formed from materials other than the relatively young shoots of deciduous trees and conifers do not, and cannot, feature the nano-lamellar structure of a fiber of the present invention.

Additionally, contrary to wood pulp derived from shoots older than one year, wood pulp derived from shoots no older than one year is substantially free of lignin, and thus lignin can be easily removed during the fiber-forming process. This is yet another aspect of the present invention that is not disclosed in the cited references.

Turning next to the Patent Office's statement that the spacing of lamellae "would obviously have been provided as a result of the process disclosed by Joseph, Marini and Beattey, since like materials and process steps are employed." Official Action, page 7. In view of the above remarks, and the remarks that follow, applicants submit that this conclusion is not supported.

Applicants submit that the striations in the fibers depicted in the figures on page 87 of the Joseph reference are likely caused by the roughness (i.e., irregularities) of the inner surface of the spinnerets. The geometrical distribution of such spinneret irregularities is random, and thus the spacing between the striae on the surface of the fiber is also random. The figures on page 87 of the Joseph reference depict such a random striae spacing. The fibers of the present invention,

on the other hand, do not comprise random striae, as an evaluation of the drawings of the subject application indicate.

Moreover, the figures on page 87 of the Joseph reference show that the spacing between the striae is in the range of micrometers, but not in the range of nanometers. Irregularities of the inner surface of the spinnerets can change the structure at the micron level, but cannot create a microstructure at the nanometer level. As noted herein, the microstructure of the fibers of the present invention is of a nanometer scale, not the micron scale.

Thus, contrary to the striations shown in the figures on page 87 of the Joseph reference, the spacing between the nano-lamellae of the fibers formed by the process of claim 1 is substantially constant, as the drawings of the subject application indicate. The drawings of the subject application indicate that this nano-lamellar structure is not caused by randomly distributed irregularities on the inner surface of the spinnerets, as is likely the case in the fibers depicted on page 87 of the Joseph reference.

Therefore, the cited references cannot be combined to disclose each and every limitation of the claimed invention. The cited references do not disclose wood pulp shoots no older than one year of deciduous trees or conifers, nor does this reference disclose the ripening maturity of 5-30° Hottenroth at each aging step; the reference also does not disclose twisting the coagulated fibers. Thus, the combination of references cited by the Patent Office fails the first prong of a prima facie case of obviousness.

Even assuming arguendo that the combination of the cited references does disclose each and every limitation of the claimed invention, applicants submit that the cited references offer no explicit or implicit suggestion to combine the cited references as proposed by the Patent Office. Therefore, the second prong of a prima facie case of obviousness is not met. As the C.A.F.C. stated, "[i]t is insufficient that the prior art disclosed the components of the patented device, either separately or used in other combinations; there must be some teaching, suggestion, or incentive to

make the combination made by the inventor." Northern Telecom Inc. v. Datapoint Corp., 15 U.S.P.Q.2d 1321, 1323 (Fed. Cir. 1990) (citations omitted). Applicants submit that no such suggestion is presented in the cited references and that, at best, the cited references are simply an "invitation to experiment" and present an "obvious-to-try" situation.

An "obvious to try" situation is held to exist:

when a general disclosure may pique the scientist's curiosity, such that further investigation might be done as a result of the disclosure, but the disclosure itself does not contain a sufficient teaching of how to obtain the desired result, or that the claimed result would be obtained if certain directions were pursued.

In re Eli Lilly & Co., 14 U.S.P.Q.2d 1741, 1743 (Fed. Cir. 1990). Courts have painstakingly distinguished between obviousness under 35 U.S.C. §103 and an "obvious-to-try" situation. "[W]e have consistently held that 'obvious-to-try' is not to be equated with obviousness under 35 U.S.C. §103." The Gillette Co. v. S.C. Johnson & Son Inc., 16 U.S.P.Q.2d 1923, 1928 (Fed. Cir. 1990). Applicants submit, therefore, that the cited references, neither alone nor in combination, present an "obvious-to-try" situation and lack an explicit or implicit suggestion or motivation to modify the references to arrive at the present invention.

Since the second prong of a prima facie case of obviousness is not met, the third prong of a prima facie case of obviousness, namely the question of whether the combination of references offers a reasonable chance of successfully combining them to arrive at the present invention, is moot.

Applicants respectfully submit that it is not possible for the references cited by the Patent Office to be combined so as to arrive at the invention recited in claims 1-16, 18-24 and 26-34 of the present invention. There is no disclosure in any of the references suggesting such a combination. Moreover, since the references do not disclose the combination, the cited references offer no motivation to make the claimed combination. As the C.A.F.C. has long held, "[o]bviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching, suggestion or incentive supporting the

combination." Carella v. Starlight Archery and Pro Line Co., 231 U.S.P.Q. 644 (Fed. Cir. 1986) (citation omitted). No such teaching, suggestion or incentive appears in the cited references.

Applicants respectfully submit that the Patent Office has not presented a prima facie case of obviousness. As such, applicants respectfully request that rejection of claims 1-16, 18-24 and 26-34 under 35 U.S.C. §103 be withdrawn. Applicants further submit that claims 1-16, 18-24 and 26-34 are in condition for allowance and respectfully solicit the same.

Applicants further submit that the addition of the Nishiyama et al. '776 patent to the Joseph reference, the Marini et al. '652 patent and the Beattley '670 patent does not supplement the Patent Office's contention that claims 17 and 25 are obvious under 35 U.S.C. §103(a) over the cited references. More particularly, the additional reference applied in the rejection of claims 17 and 25, namely the Nishiyama et al. '776 patent, does not disclose employing wood pulp derived from shoots no older than one year of deciduous trees or conifers. As discussed in further depth herein, the source of wood pulp employed in the formation of cellulosic fibers, such as those formed by the methods of the present invention, is a consideration. As disclosed herein and in the subject patent application, the wood pulp recited in the claims of the present invention gives rise to a particular microstructure (i.e., nano-lamellar structure) when treated with the method of claim 1, from which claims 17 and 25 depend. Neither this type of wood pulp, namely wood pulp derived from shoots no older than one year of deciduous trees or conifers, nor the use of such a wood pulp, is disclosed in any of the references cited in the Patent Office's rejection of claim 1. This deficiency is not supplemented by the disclosure of the Nishiyama et al. '776 patent.

Since none of the four references cited in the rejection of claims 17 and 25 disclose wood pulp derived from shoots no older than one year of deciduous trees or conifers, nor the use of such a wood pulp in any way, applicants respectfully submit that the Patent Office has not presented a prima facie case of obviousness with

respect to claims 17 and 25. As such, applicants respectfully request that rejection of claims 17 and 25 under 35 U.S.C. §103 be withdrawn. Applicants further submit that claims 17 and 25 are in condition for allowance and respectfully solicit the same.

Claim 1

Claim 1 has been amended to clarify the active steps of the process. This amendment is purely formal and no new matter is introduced by this amendment. Support for the amendment is found in claim 1 itself.

VI. New Claims

Claims 54-62 have been added. New claims 54-62 recite subject matter that was removed from claims 3, 20-22 and 24. Support for new claims 54-62 is found in original claims 3, 20-22 and 24, since new claims 54-62 capture material removed from claims 3, 20-22 and 24. New claims 54-62 do not recite any new matter.

Applicants submit that new claims 54-62 are in condition for allowance and respectfully solicit the same.

VII. Allowable Subject Matter

The Patent Office states "[c]laims 43 and 44 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims." Official Action, page 8.

Claims 43 and 44 have been amended to independent form and incorporate the elements of the claim from which they formerly depended, as well as any intervening claims. Applicants submit that independent amended claims 43 and 44 are in condition for allowance and respectfully solicit the same.

CONCLUSION

In light of the above amendments and remarks, it is respectfully submitted that the present application is now in proper condition for allowance, and such action is earnestly solicited.

If any small matter should remain outstanding after the Patent Examiner has had an opportunity to review the above Remarks, the Patent Examiner is respectfully requested to telephone the undersigned patent attorney in order to resolve these matters and avoid the issuance of another Official Action.

DEPOSIT ACCOUNT

The Commissioner is hereby authorized to charge any fees associated with the filing of this correspondence to Deposit Account No. 50-0426.

Respectfully submitted,

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PATENT TRADEMARK OFFICE

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE SPECIFICATION:

The paragraph beginning at page 6, line 13, has been amended as follows:

--The ripened crumbs are subsequently treated under application of the conventional wet sulphide process in order to sulphidise the cellulose. The wet sulphide process is preferably carried out in a solution containing carbon disulphide, sodium hydroxide and [Berol] BEROL. The preferred carbon disulphide content of the solution is between 150 and 250 g/l, particularly favourable is between 180 and 210 g/l, and the preferred content of sodium hydroxide is between 250 and 350 g/l, particularly favourable is between 280 and 320 g/l, and the preferred content of [Berol] BEROL is between 100 and 200 g/l, particularly favourable is approx. 150 g/l. The most preferable type of [Berol] BEROL used for this process step is one of the commercially available products from Berol-Kemie Ltd., 44401 Stennungsund, Sweden.--

The paragraph beginning at page 7, line 7, has been amended as follows:

--The deaerated spinning solution is introduced by means of spinnerets into a regenerating bath, preferably at a temperature of between 35 and 45°C, and ideally at a temperature of approx. 40°C. A suitable regenerating bath contains between 70 and 160 g/l of sulphuric acid, preferred is between 90 and 140 g/l, and approx. 120 g/l is ideal, plus between 0.3 and 4 g/l of zinc sulphate, preferred is between 0.5 and 2 g/l, and approx. 1 g/l is ideal, plus between 0.05 and 1 g/l of [Berol] BEROL, preferred is between 0.1 and 0.7 g/l, and approx. 0.4 g/l is ideal. The most preferable type of [Berol] BEROL used for this process step is one of the commercially available products from Berol-Kemie Ltd., 44401 Stennungsund, Sweden. The spinnerets used can be oval to long-slit-shaped, and are heated to keep them within a preferred temperature range of 55 - 75°C, particularly favourable is between 65 and 70°C, and approx. 67°C is absolutely ideal.--

IN THE CLAIMS:

1. (Once amended) A process [Process] to manufacture a cellulose fibre from hydrate cellulose, the method comprising [which comprises] the following steps:

- a) treating [Treatment of] wood pulp derived from shoots no older than 1 year of deciduous trees or conifers with an alkali [hydroxide] metal hydroxide solution [in order] to obtain an alkali cellulose;
- b) pressing out [of the] superfluous alkali metal hydroxide solution from the [obtained] alkali cellulose;
- c) shredding [of] the alkali cellulose into alkali cellulose crumbs;
- d) ripening [of] the alkali cellulose crumbs to a maturity of between 5° and 30° Hottenroth to form ripened crumbs;
- e) treating the ripened crumbs [application of the wet sulphide process to treat the ripened crumbs] with a wet sulphide process [in order] to form sulphadised [the] cellulose;
- f) rinsing and diluting of the sulphadised cellulose with water [in order] to obtain a spinning solution;
- g) [subsequent] ripening of the spinning solution [rinsed and diluted cellulose] to a maturity of between 5° and 30° Hottenroth;
- h) filtering and downstream deaerating [deaeration of] the spinning solution;
- i) injecting [injection of] the spinning solution into a regenerating bath under application of spinnerets;
- j) stripping [off] the coagulating fibres off of the spinnerets with simultaneous twisting in order to obtain twisted fibres;
- k) dehydrating [of] the twisted fibres;
- l) desulphurising [desulphurisation of] the twisted fibres;
- m) washing [of] the twisted fibres with water;
- n) predehydrating [of] the twisted fibres; and

- o) drying [of] the twisted fibres.

3. (Once Amended) Process in accordance with Claim 1, characterised in that the lignin content of the less-than-one-year-old shoots used does not exceed 7%[, preferred is no more than 5%, and particularly favourable is not more than 2%].

20. (Once Amended) Process in accordance with Claim 1, characterized in that the regenerating bath in Step i) contains between 70 and 160 g/l[, preferably between 90 and 140 g/l, and ideally approximately 120 g/l] of sulphuric acid.

21. (Once Amended) Process in accordance with Claim 1, characterized in that the regenerating bath in Step i) contains between 0.3 and 4 g/l[, preferably between 0.5 and 2 g/l, and ideally approximately 1 g/l] of zinc sulphate.

22. (Once Amended) Process in accordance with Claim 1, characterized in that the regenerating bath in Step i) contains between 0.5 and 1 g/l[, preferably between 0.1 and 0.7 g/l, and ideally approximately 0.4 g/l] of [Berol] BEROL.

24. (Once Amended) Process in accordance with Claim 23, characterized in that the spinnerets are kept at a temperature of between 65°C and 70°C[, and preferably at approx. 67°C].

37. (Twice Amended) Fabric comprising:

a) a backing fabric; and

b) a pile comprising fibers in accordance with Claim 33;

wherein the pile is woven into the backing fabric [which contains the fibres in accordance with Claim 33].

38. (Once Amended) Fabric in accordance with Claim 37, characterized in that the backing fabric has a lattice[-like] structure.

43. (Once Amended) Fabric comprising a backing fabric and a pile woven into the backing fabric comprising cellulose fibers formed by: [in accordance with Claim 42,]

- a) treating wood pulp derived from shoots no older than 1 year of deciduous trees or conifers with an alkali metal hydroxide solution in order to obtain an alkali cellulose;
- b) pressing out the superfluous alkali metal hydroxide solution from the obtained alkali cellulose;
- c) shredding the alkali cellulose into crumbs;
- d) ripening the alkali cellulose crumbs to a maturity of between 5° and 30° Hottenroth;
- e) employing a wet sulfide process to treat the ripened crumbs in order to sulfadize the cellulose;
- f) rinsing and diluting the sulfadized cellulose with water in order to obtain a spinning solution;
- g) subsequently ripening the rinsed and diluted cellulose to a maturity of between 5° and 30° Hottenroth;
- h) filtering and deaerating the spinning solution
- i) injecting the spinning solution into a regenerating bath under application of spinnerets;
- j) stripping off the coagulating fibers with simultaneous twisting in order to obtain twisted fibers;
- k) dehydrating the twisted fibers;
- l) desulfurizing the twisted fibers;
- m) washing the twisted fibers with water;
- n) predehydrating the twisted fibers; and

o) drying the twisted fibers;

the fabric characterised in that the pile consists of 50% oval fibers and 50% tape fibers.

44. (Once Amended) Fabric comprising a backing fabric and a pile woven into the backing fabric comprising cellulose fibers formed by: [in accordance with Claim 43,]

- a) treating wood pulp derived from shoots no older than 1 year of deciduous trees or conifers with an alkali metal hydroxide solution in order to obtain an alkali cellulose;
- b) pressing out the superfluous alkali metal hydroxide solution from the obtained alkali cellulose;
- c) shredding the alkali cellulose into crumbs;
- d) ripening the alkali cellulose crumbs to a maturity of between 5° and 30° Hottenroth;
- e) employing a wet sulfide process to treat the ripened crumbs in order to sulfadize the cellulose;
- f) rinsing and diluting the sulfadized cellulose with water in order to obtain a spinning solution;
- g) subsequently ripening the rinsed and diluted cellulose to a maturity of between 5° and 30° Hottenroth;
- h) filtering and deaerating the spinning solution
- i) injecting the spinning solution into a regenerating bath under application of spinnerets;
- j) stripping off the coagulating fibers with simultaneous twisting in order to obtain twisted fibers;
- k) dehydrating the twisted fibers;
- l) desulfurizing the twisted fibers;
- m) washing the twisted fibers with water;

n) predehydrating the twisted fibers; and

o) drying the twisted fibers;

the fabric characterized in that the pile consists of 50% of oval fibers with a count of 330 dtex F60 and 50% of tape fibers with a count of 300 dtex F80.

45. (Twice Amended) A cleaning and decontamination [Use of the] fabric made in accordance with Claim 37.

46. (Twice Amended) A water surface tension reducer comprising a [Use of the] fabric in accordance with Claim 37 [to reduce the surface tension of water].

47. (Twice Amended) A textile comprising a [Use of the] fabric in accordance with Claim 37 [to make textiles].

48. (Twice Amended) A clothing textile comprising a [Use of the] fabric in accordance with Claim 37 [to make clothing textiles].

49. (Twice Amended) A personal hygiene article comprising a [Use of the] fabric in accordance with Claim 37 [to make personal hygiene articles].

50. (Twice Amended) A particle filter comprising a [Use of the] fabric in accordance with Claim 37 [as a particle filter].

51. (Twice Amended) A condensation catalyst comprising a [Use of the] fabric in accordance with Claim 37 [as a condensation catalyst].

52. (Twice Amended) A floor covering comprising a [Use of the] fabric in accordance with Claim 37 [as a floor covering].

53. (Twice Amended) A covering material comprising a [Use of the] fabric in accordance with Claim 37 [as a covering material].

54. (New) Process in accordance with claim 1, characterized in that the lignin content of the less-than-one-year-old shoots used does not exceed 5%.

55. (New) Process in accordance with claim 1, characterized in that the lignin content of the less-than-one-year-old shoots used does not exceed 2%.

56. (New) Process in accordance with Claim 1, characterized in that the regenerating bath in Step i) contains between 90 and 140 g/l of sulphuric acid.

57. (New) Process in accordance with Claim 1, characterized in that the regenerating bath in Step i) contains approximately 120 g/l of sulphuric acid.

58. (New) Process in accordance with Claim 1, characterized in that the regenerating bath in Step i) contains between 0.5 and 2 g/l of zinc sulphate.

59. (New) Process in accordance with Claim 1, characterized in that the regenerating bath in Step i) contains approximately 1 g/l of zinc sulphate.

60. (New) Process in accordance with Claim 1, characterized in that the regenerating bath in Step i) contains between 0.1 and 0.7 g/l of BEROL.

61. (New) Process in accordance with Claim 1, characterized in that the regenerating bath in Step i) contains approximately 0.4 g/l of BEROL.

62. (New) Process in accordance with Claim 23, characterized in that the spinnerets are kept at a temperature of approximately 67°C.